IN THE SPECIFICATION:

Line By Line Amendment:

Page 2, line 30 cancel “Neil” and insert --Heil--;

Page 6, line 18 after “and” insert --the--;

Page 8, line 36 cancel “$1m^3$” and insert --1 l--;

Page 8, line 37 cancel “20L” and insert --20 l--;

Page 8, line 37 cancel “mL” and insert --ml--;

Page 9, line 2 cancel “L” and insert --l--;

Page 9, line 3 cancel “L” and insert –l--both occurrences;

Page 9, line 6 cancel “mL” and insert –ml-- both occurrences;

Page 9, line 6 cancel “$1m^3$“ and insert --1 l--;

Page 9, line 7 cancel “mL” and insert --ml--;

Page 9, line 7 cancel “L” and insert --l--;

Page 9, line 8 cancel “L” and insert --l--;

Page 11, line 20 cancel “said” and insert --its--;

Page 12, line 13 cancel “Examples” and insert --examples--;

Page 13, line 2 cancel first occurrence “of”;

Page 13, line19 cancel “is” and insert --are--;

Page 14, line 16 after “and” insert --a--;

Page 14, line 33 after “and” insert --the--;

Page 19, line 18 after “with” insert --those shown in--;

Page 20, line18 cancel “shows” and insert --show--;

Page 21, line 23 cancel “T_1^8” and insert --T_1^W--;

Full Text Amendment:

- Heil et al., Physics Letters A 201: 337-343 (1995).

In a particularly preferred embodiment, the homogenising effect of these pole shoes can be increased by introducing magnetic resistances between the pole shoes and the yoke. A preferred material for a magnetic resistance of this sort, is a rigid non-magnetic layer, for instance in the form of a plate, for example of plastic, fitted between the pole shoe and the yoke. If such a plate or, in order to save weight, preferably, a porous, e.g. honeycomb structure, is also bonded to the pole shoe, this guarantees its flatness which allows the pole shoes to be parallel and the field B_0 to be homogeneous.

The container is advantageously constructed using a yoke of a material which is not magnetically saturated at fields below 1 Tesla, more preferably 2 Tesla, e.g. a soft iron. The container dimensions are preferably such that the usable volume (within which the gas storage cell may be disposed) is at least 50 ml, more preferably 100 ml, especially preferably 200 ml to greater than 1 l, e.g. up to 20 l, more particularly 200-2000 ml. The materials used can allow a total container weight to magnetic chamber volume of no more than 1 kg/l, more preferably 0.2 kg/l, especially preferably 1/30 kg/l. The gas storage cell which can be disposed in the container, e.g. for storage or transport, preferably has an internal volume of at least 50 ml, e.g. 100 ml to 1 l, particularly 100 ml to 20 l, more particularly 200 ml to 2 l. This cell may be provided with a valve for allowing gas introduction and removal; alternatively it may be a single-use cell, e.g. provided with a sealable portion and a breakable portion (which may be the sealable portion after sealing).

(i) positioning said container with its axis parallel to the field direction of an external substantially homogeneous magnetic field;

Embodiments of the invention are described by way of non-limiting examples, with reference to the accompanying drawings, in which:

Fig. 6: shows the relaxation of ^3He polarization in a storage cell made of glass with a low iron content, whereby the volume of the cell is, for example, 350 cm^3 and the gas pressure 2.5 bars;

Referring to Figure 1, there is shown an external perspective view of a container 1 in accordance with the invention, which in this instance is designed as a two-part cylindrical pot magnet with an upper section 1.1 and a lower section 1.2. Also indicated are the rotationally symmetrical axis S of the pot magnet and the magnetic field line of external magnetic fields, for example the earth's magnetic field. Especially clearly shown is the path of an external magnetic field or stray field B_s^1 which does not penetrate into the interior of the pot magnet but, due to the slight magnetic resistance of the yoke 2, which is preferably made of a soft iron material, is conducted around the interior space. The stray field B_s^{II} is perpendicular to the end-plates of the yoke and is homogenised by the μ-soft iron pole shoes positioned inside the yoke 2.

The pot magnet 1 comprises a cylindrically-formed yoke 2, preferably made of soft iron for returning the magnetic flux and for shielding off external fields. In turn, the cylindrically-formed yoke 2 features two yoke end plates forming a central section 2.1. In the construction form shown, the yoke end plates 2.1 take the form of two circular discs 2.1.1 and 2.1.2. Closed surrounding sheets 2.2 and 2.3 are arranged around the rim of the yoke end plates to form a yoke jacket. These differ in the two construction forms shown in the left and right halves of Fig. 2. The surrounding sheets 2.2 and 2.3 are arranged both on the upper disc 2.1.1 and also on the lower disc 2.1.2, resulting in an upper section and a lower section of the pot magnet, which, in the first construction form shown on the left, meet at the projecting angled peripheral flanges 2.2.1 in the median plane of the magnetic device. In the second construction form shown on the right, the peripheral flanges 2.3.1 are spaced in such a way that an opening for holding field sources, for example permanent magnets, is formed in the median plane 4 of the pot magnet 1. The field line produced due to the positioning of the field sources, for example the permanent magnets, in the centre between the upper and lower peripheral flanges of the pot magnet is identified with 6. In the first construction form shown on the left, the height of the two halves of the yoke jacket 2.2 exceeds the distance between the yoke end plates 2.1.1, 2.1.2. It is possible to position field sources on the outer surface 2.5 in the gap between the jacket and the end plate. The field line in the boundary region which results with such an arrangement is identified with the number 8.

Figures 3c and 3d show means of compensation which are comparable with those shown in Figures 3a and 3b where, in this example, magnetic coils 50, 52 arranged centrally in the area of the median plane 4 of the pot or in the vicinity of the end plates of the pot are used as field sources instead of permanent magnets.

Figures 5a and 5b show the curve of the amount of the relative, radial gradient $G_r = ((\delta B_r/\delta_r)/B_o)$ measured 1.5 cm above the reflective plane 4 of the pot magnet in a radial direction r for different arrangements of the permanent magnets in or on the pot magnet in accordance with the invention. The curve marked "a" shows the curve produced when permanent magnets are only arranged in the gap in the median plane 4, as shown in the right half of Fig. 2, and the curve marked "b" shows the curve produced where the permanent magnets are positioned on the outer surface on the end plates of the pot as shown on the left-hand side of Fig. 2. The curve identified with "c" shows the curve of the radial gradient which is produced if the permanent magnets are divided between being positioned on the outer surface and being positioned in the gap in the median plane in accordance with Fig. 3a. The numerical ratio between the magnets is 6:8 in the curve shown in curve 3c, i.e. 6 magnets were arranged in the center and 8 on the end plates. In this case, with a gap between the pole shoes of 18 cm

Figure 6 shows a measurement record of the relaxation of the ^3He a polarization in a storage cell of glass with a low iron content. The volume of the storage cell is 350 cm^3, the gas pressure 2.5 bars. As can be seen from this figure, a relaxation time of more than 70 hours is measured through the use of such glasses, whereby the gradient-dependent relaxation time could be ignored under the conditions for this measurement. If one introduces such a receptacle consisting of glass with a low iron content into the pot magnet in the region of the homogenised field, a resulting total relaxation time $T_{res} = (1/T_1^g + 1/T_1^w)^{-1}$ of 64 hours is achieved, based on a gradient-dependent relaxation time of T_1^g = 750 h and a wall-related relaxation time of T_1^w = 70 h.